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Title : Individual variability in wild bottlenose dolphin calf social relationships in Shark Bay, Western Australia

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Abstract : Due to the long periods of dependency exhibited by bottlenose dolphin calves, significant social bonds may form while a calf is still primarily associated with its mother. As a result, the degree of the mother's sociality likely affects the calf's exposure to individuals of different age and sex classes. However, dolphin calves are unique in that they are highly precocious, with low locomotion costs, and separate from the mother frequently, often for long distances. Thus, dolphin calves have social options distinct from the mother and unavailable to other social mammals with long periods of dependency. As a first step in examining the social development of calves, we describe two measures of calf sociality: 1) the number of associates; and, 2) the percent time calves associate with individuals other than the mother. We examine both measures of sociality using focal observations of 33 mothers (1472 hrs) and 61 calves (1545 hrs). Calves vary greatly in total number of associates, ranging from 0 to 82 associates during the first four years of life (mean=33.56; SD= ± 22.26). Similarly, calves were highly variable in terms of percent time spent in association (mean=52.63; SD= ± 26.48 ; range=0-100%). Analyses of these measures for 61 calves, using Generalized Estimating Equation (GEE) models indicate that these two sociality measures are related ($Z = 7.26$, $p < 0.001$), and as such provide useful measures for distinguishing highly social from less social individuals. Furthermore, it was determined that calves of highly social mothers are social themselves when away from the mother ($Z = 4.90$, $p < 0.0001$). In other words, the calf's sociality mirrors that of the mother. Such patterns are likely to influence social development, the size and strength of female bonds, and the eventual formation of male alliances.